

DBMS Lab Experiment 04

To understand and apply the concept of Constraints

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Objective

To understand the concept of data constraints that is enforced on data being stored in the table. Focus on Primary Key and the Foreign Key.

ER → Relational Mapping

Relations:

1. **CLIENT_MASTER**(ClientNo, Name, City, State, Pincode, BalDue, Telephone)
2. **PRODUCT_MASTER**(ProductNo, Description, ProfitPercent, UnitMeasure, QtyOnHand, ReorderLvl, SellPrice, CostPrice)
3. **SALESMAN_MASTER**(SalesmanNo, Name, City, Pincode, State, SalAmt, TgtToGet, YtdSales, Remarks)

Note: Primary keys are underlined. Foreign keys would be added when creating order tables.

1. Table Creation

Creating CLIENT_MASTER Table

```
CREATE TABLE CLIENT_MASTER (
    ClientNo VARCHAR(10) PRIMARY KEY,
    Name VARCHAR(50) NOT NULL,
    City VARCHAR(30),
    State VARCHAR(30),
    Pincode VARCHAR(10),
    BalDue DECIMAL(10, 2) DEFAULT 0
);
```

Creating PRODUCT_MASTER Table

```
CREATE TABLE PRODUCT_MASTER (
    ProductNo VARCHAR(10) PRIMARY KEY,
    Description VARCHAR(100),
    ProfitPercent DECIMAL(5, 2),
    UnitMeasure VARCHAR(20),
    QtyOnHand INT,
    ReorderLvl INT,
    SellPrice DECIMAL(8, 2),
    CostPrice DECIMAL(8, 2)
);
```

Creating SALESMAN_MASTER Table

```
CREATE TABLE SALESMAN_MASTER (
    SalesmanNo VARCHAR(10) PRIMARY KEY,
    Name VARCHAR(50) NOT NULL,
    City VARCHAR(30),
    Pincode VARCHAR(10),
    State VARCHAR(30),
    SalAmt DECIMAL(10, 2),
    TgtToGet DECIMAL(10, 2),
    YtdSales DECIMAL(10, 2),
    Remarks VARCHAR(100)
);
```

2. Inserting Sample Data

Data for CLIENT_MASTER

```

INSERT INTO CLIENT_MASTER (ClientNo, Name, City, State, Pincode, BalDue)
VALUES
('C00001', 'Ivan Bayross', 'Mumbai', 'Maharashtra', '400054', 15000.00),
('C00002', 'Mamta Muzumdar', 'Madras', 'Tamil Nadu', '780001', 0.00),
('C00003', 'Chhaya Bankar', 'Mumbai', 'Maharashtra', '400057', 5000.00),
('C00004', 'Ashwini Joshi', 'Bangalore', 'Karnataka', '560001', 0.00),
('C00005', 'Hansel Colaco', 'Mumbai', 'Maharashtra', '400060', 2000.00),
('C00006', 'Deepak Sharma', 'Mangalore', 'Karnataka', '560050', 0.00);

```

Data for PRODUCT_MASTER

```

INSERT INTO PRODUCT_MASTER (ProductNo, Description, ProfitPercent,
UnitMeasure, QtyOnHand, ReorderLvl, SellPrice, CostPrice) VALUES
('P00001', 'T-Shirts', 5.00, 'Piece', 200, 50, 350.00, 250.00),
('P0345', 'Shirts', 6.00, 'Piece', 150, 50, 500.00, 350.00),
('P06734', 'Cotton Jeans', 5.00, 'Piece', 100, 20, 600.00, 450.00),
('P07865', 'Jeans', 5.00, 'Piece', 100, 20, 750.00, 500.00),
('P07868', 'Trousers', 2.00, 'Piece', 150, 50, 850.00, 550.00),
('P07885', 'Pull Overs', 2.50, 'Piece', 80, 30, 700.00, 450.00),
('P07965', 'Denim Shirts', 4.00, 'Piece', 100, 40, 350.00, 250.00),
('P07975', 'Lycra Tops', 5.00, 'Piece', 70, 30, 300.00, 175.00),
('P08865', 'Skirts', 5.00, 'Piece', 75, 30, 450.00, 300.00);

```

Data for SALESMAN_MASTER

```

INSERT INTO SALESMAN_MASTER (SalesmanNo, Name, City, Pincode, State, SalAmt,
TgtToGet, YtdSales, Remarks) VALUES
('S00001', 'Aman', 'Mumbai', '400001', 'Maharashtra', 3000.00, 100000.00,
50000.00, 'Good'),
('S00002', 'Omkar', 'Mumbai', '400002', 'Maharashtra', 3000.00, 200000.00,
100000.00, 'Good'),
('S00003', 'Raj', 'Mumbai', '400003', 'Maharashtra', 3000.00, 200000.00,
100000.00, 'Good'),
('S00004', 'Ashish', 'Mumbai', '400004', 'Maharashtra', 3500.00, 200000.00,
150000.00, 'Good');

```

3. Exercise on Retrieving Records

Q 1: Find out the names of all the clients

```
SELECT Name FROM CLIENT_MASTER;
```

Result

Name
Ivan Bayross
Mamta Muzumdar
Chhaya Bankar
Ashwini Joshi
Hansel Colaco
Deepak Sharma

Q 2: Retrieve the entire contents of the Client_Master table

```
SELECT * FROM CLIENT_MASTER;
```

Result

ClientNo	Name	City	State	Pincode	BalDue
C 00001	Ivan Bayross	Mumbai	Maharashtra	400054	15000.00
C 00002	Mamta Muzumdar	Madras	Tamil Nadu	780001	0.00
...

Q 3: Retrieve the list of names, city and state of all the clients

```
SELECT Name, City, State FROM CLIENT_MASTER;
```

Result

Name	City	State
Ivan Bayross	Mumbai	Maharashtra
Mamta Muzumdar	Madras	Tamil Nadu

Name	City	State
Chhaya Bankar	Mumbai	Maharashtra
...

Q 4: List the various products available from the Product_Master table

```
SELECT Description FROM PRODUCT_MASTER;
```

Result

Description
T-Shirts
Shirts
Cotton Jeans
Jeans
Trousers
...

Q 5: List all the clients who are located in Mumbai

```
SELECT * FROM CLIENT_MASTER  
WHERE City = 'Mumbai';
```

Result

ClientNo	Name	City	State	Pincode	BalDue
C 00001	Ivan Bayross	Mumbai	Maharashtra	400054	15000.00
C 00003	Chhaya Bankar	Mumbai	Maharashtra	400057	5000.00
C 00005	Hansel Colaco	Mumbai	Maharashtra	400060	2000.00

Q 6: Find the names of salesman who have a salary equal to Rs. 3000

```
SELECT Name FROM SALESMAN_MASTER  
WHERE SalAmt = 3000.00;
```

Result

Name
Aman
Omkar
Raj

4. Exercise on Updating Records

Q 1: Change the city of ClientNo 'C 00005' to 'Bangalore'

```
UPDATE CLIENT_MASTER  
SET City = 'Bangalore'  
WHERE ClientNo = 'C00005';
```

Q 2: Change the BalDue of ClientNo 'C 00001' to Rs. 1000

```
UPDATE CLIENT_MASTER  
SET BalDue = 1000.00  
WHERE ClientNo = 'C00001';
```

Q 3: Change the cost price of 'Trousers' to Rs. 950.00

```
UPDATE PRODUCT_MASTER  
SET CostPrice = 950.00  
WHERE Description = 'Trousers';
```

Q 4: Change the city of the salesman to Pune

```
UPDATE SALESMAN_MASTER  
SET City = 'Pune';
```

5. Exercise on Deleting Records

Q 1: Delete all salesman whose salaries are equal to Rs. 3500

```
DELETE FROM SALESMAN_MASTER  
WHERE SalAmt = 3500.00;
```

Q 2: Delete all products where quantity on hand is equal to 100

```
DELETE FROM PRODUCT_MASTER  
WHERE QtyOnHand = 100;
```

Q 3: Delete from Client_Master where state is 'Tamil Nadu'

```
DELETE FROM CLIENT_MASTER  
WHERE State = 'Tamil Nadu';
```

6. Exercise on Altering Table Structure

Q 1: Add a column called 'Telephone' to Client_Master table

```
ALTER TABLE CLIENT_MASTER  
ADD Telephone BIGINT;
```

Q 2: Change the size of SellPrice column to 10,2

```
ALTER TABLE PRODUCT_MASTER  
ALTER COLUMN SellPrice TYPE DECIMAL(10, 2);
```

7. Exercise on Deleting Table Structure

Q 1: Destroy the table Client_Master along with its data

```
DROP TABLE CLIENT_MASTER;
```

Verification Queries

View All Tables

```
SELECT table_name  
FROM information_schema.tables  
WHERE table_schema = 'public';
```

View Table Structure

```
-- Using psql meta-command  
\d CLIENT_MASTER  
\d PRODUCT_MASTER  
\d SALESMAN_MASTER  
  
-- Using SQL query  
SELECT column_name, data_type, character_maximum_length  
FROM information_schema.columns  
WHERE table_name = 'client_master';
```

Count Records

```
SELECT COUNT(*) AS ClientCount FROM CLIENT_MASTER;  
SELECT COUNT(*) AS ProductCount FROM PRODUCT_MASTER;  
SELECT COUNT(*) AS SalesmanCount FROM SALESMAN_MASTER;
```

